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Compulsive buying and branding phenomena

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Abstract

Background: The purpose of this paper was to explore the impact of brand variables such as brand awareness, brand loyalty, brand attachment, and perceived brand quality on compulsive buying behavior.

Methods: A self-administered questionnaire, containing demographic items and items related to compulsive buying, brand awareness, brand loyalty, brand attachment and perceived quality, was used to collect data.

Results: Participants were 269 US university students at a large mid-western university (138 men, 131 women; mean age = 21.96). Data were analyzed using descriptive statistics, *t*-test and MANOVA/ANOVA. Reliability of all scales was acceptable. In the current study, 18 % of the participants were classified as compulsive buyers. Women showed higher compulsive buying tendency than men. Participants with greater compulsive buying tendency scored higher on brand attachment and brand loyalty and lower on brand awareness; there was no difference in scores on perceived brand quality.

Conclusions: Results support that brand variables such as brand awareness, brand loyalty, and brand attachment are related to compulsive buying behavior. New perceptions and implications for both academicians and practitioners are provided.

Keywords: Compulsive buying; Brand awareness; Brand loyalty; Brand attachment; Perceived quality

Background

Compulsive buying and branding phenomena

Consumer decision-making is affected by factors both internal (e.g., positive or negative emotional states) and external (e.g., brand names, gender). Consumer decision-making resulting in compulsive buying has been a topic for increasing research consideration in recent years (Weaver, Moschis, and Davis, 2011). O'Guinn and Faber (1989, p. 149) define compulsive buying as "chronic, repetitive purchasing that occurs as a response to negative events or feelings." Compulsive buying arises from 2 % to 16 % of the general population (Dittmar, 2005) and is acknowledged as a serious psychological and psychiatric problem. Many studies (e.g., Faber and O'Guinn, 1992) have found that females are more likely to be compulsive buyer than males.

Based on previous research, it can be predicted that consumers with higher levels of compulsive buying behavior will have stronger brand relationships. However, there is little research to explore these relationships. Therefore, the purpose of this paper was to explore the relationships between compulsive buying behavior

and branding variables such as brand awareness, brand loyalty, brand attachment, and perceived brand quality.

Conceptual framework

Affluenza theory is one conceptual framework for better understanding an association between compulsive buying and brand consumption (Workman and Paper, 2010). According to this theory, compulsive buying is dependent on sufficient disposable income to allow for abundant shopping opportunities. In addition, this theory speculates that advertising can prompt compulsive buying. According to Chinomona (2013), compulsive buying is “an uncontrollable and emotional addiction that is socially and externally induced, for instance, through brand advertisements” (p. 6), indicating that compulsive buying behavior may interplay with branding phenomena. Marketing has been named as one reason for compulsive buying with pervasive messages designed to promote materialism and generate urges to purchase (cf. Roberts and Manolis, 2000; Damon, 1988). However, marketing may serve only a facilitating role.

Compulsive buying behavior

Compulsive buying behavior is typified by excessive thoughts of shopping and buying behavior that produces distress or harm (Black, 2007). Observed worldwide, compulsive buying behavior is prevalent in 5.8 % of the US population (Koran et al. 2006) and as high as 11 % among younger generations (Roberts and Manolis, 2000). Compulsive buyers express an obsession with shopping, pre-purchase anxiety, and relief following a purchase (Black, 2007). Compulsive buying may begin in the late teens or early twenties (Christenson et al. 1994; Koran et al. 2002; Schlosser, 1994). College students and young adults are especially vulnerable (Barber, 2007; Roberts and Jones, 2001). Credit cards enable compulsive buying among college students because they are widely available and aggressively marketed on college campuses to students who lack jobs, income, credit history, and financial education (Benson, Dittmar, and Wolfsohn, 2010). Among college students, the prevalence of compulsive buying ranges from 6 % (Roberts, 1998), 9.3 % (Grant et al. 2005), 12.2 % (Hassay and Smith, 1996) to 16 % (Magee, 1994). Compulsive buyers purchase items including (from most to least) clothing, shoes, compact discs, jewelry, cosmetics, and household items (Christenson et al. 1994; Schlosser et al. 1994; Miltenberger et al. (2003) and describe spending from \$89 to \$110 on average during a typical event (Christenson et al. 1994; Miltenberger et al. 2003; Schlosser et al. 1994).

Compulsive buying includes uncontrollable urges to buy that are often associated with buying more than the person can afford, buying items that are not needed, or shopping longer than planned (McElroy et al. 1994). Compulsive buying behaviors have harmful economic and psychological consequences including credit card debt, minimal or no savings, anxiety, depression, frustration, interpersonal conflict and low self-esteem (McElroy et al. 1994; O’Guinn and Faber, 1989; Roberts, 1998).

Compulsive buying and impulsive buying

Impulsivity is characterized by a tendency towards action without forethought, quick mental decisions, and failure to be aware of future consequences (Barratt, 1993).

Although a strong correlation exists between impulsive and compulsive buying behaviors (Shahjehan et al. 2012), compulsive buying encompasses an “inability to control the urge” (Faber et al. 1995, p. 297) and “leads to extreme negative circumstances” (Ridgway et al. 2006, p. 131). On the other hand, impulsive buying occurs “when a consumer experiences a sudden, often powerful and persistent urge to buy something immediately. The impulse to buy is hedonically complex and may stimulate emotional conflict; also, impulse buying is prone to occur with diminished regard for its consequences” (Rook, 1987, p. 191).

Compulsive buying and gender

Research has not documented gender-specific compulsive buying patterns; however, women account for approximately 80 % of compulsive buyers who are treated clinically. Compulsive buyers purchase such items as clothing, shoes, crafts, jewelry, gifts, makeup, and compact discs/DVDs (Christenson et al. 1994; Mitchell et al. 2006; Schlosser et al. 1994). Men who are compulsive buyers tend to buy more electronic, automotive, and hardware items than women. “Compulsive shoppers often display a great fashion sense and have an intense interest in new clothing styles and products” (Black, 2007, p. 8). The types of items purchased compulsively often have emotional significance, which may fulfill personal and social identity needs (Dittmar, 2007; Richards, 1996). Richards (1996) highlighted the role of clothing in creating a feminine identity. Compared with other types of products, clothing is more likely to be the target of impulsive purchases because clothing can be symbolic of an individual's self-image (Dittmar and Beattie, 1998). Dittmar and Drury (2000) found that self-image concerns were more intimately connected to compulsive buying in women than in men.

Primary socialization may be linked to the high level of compulsive buying among young women. Women are more likely to have been socialized to derive pleasure from shopping than men (Roberts, 1998). In addition, women do more shopping for the household (Van Slyke et al. 2002) which provides them with abundant shopping opportunities. Therefore, hypothesis one was proposed.

- H1. Women are more likely to have a higher level of compulsive buying tendency than men.

Brand variables

Brand awareness

Brand awareness has been defined as the consumers' ability to identify or recognize the brand (Rossiter and Percy, 1987) or as consisting of brand recognition, brand recall, and brand identification (Keller, 1998). Brand recognition refers to an ability to correctly identify a brand as a brand previously heard about or seen; brand recall refers to retrieving a brand from memory in response to some reference to the product category or the needs fulfilled by the category (Keller, 1998). Ross and Harradine (2004) examined the degree of brand awareness within different age groups and found that five- and six-year-old children were aware of branded sportswear and had been aware for a long time. Nine- to 11-year-old children claimed to be able to distinguish counterfeit brands from the real thing. Brand awareness

involves an ability to recall the brand as a member of a product category and refers to the salience of the brand in the customers mind (Aaker, 1991; Keller, 1993). Brand awareness can affect perceptions and attitudes and can vary in strength—from mere recognition to being the only brand recalled by a consumer (Aaker, 1991). According to Keller (1993, p. 3) “brand recognition may be more important to the extent that product decisions are made in the store”; perhaps partially because awareness levels can be affected by brand symbols and visual imagery. Brand awareness, then, may contribute to compulsive buying by being a cue that evokes memories of the brand and because compulsive buying often involves product decisions made in the store. Therefore, hypothesis two was proposed.

- H2. Individuals with a high (vs. medium or low) compulsive buying tendency will differ in level of brand awareness.

Brand loyalty

Brand loyalty has been variously defined as: “the attachment that a customer has to a brand” (Aaker, 1991, p. 39) or “a deeply held commitment to rebuy or re-patronize a preferred product or service consistently in the future, despite situational influences and marketing efforts having potential to cause switching behavior” (Oliver, 1997, p. 392). Aaker’s definition highlights brand loyalty as an attitudinal dimension; Oliver’s definition focuses on the behavioral dimension. Brand loyalty is often described as a favorable attitude towards a brand and repeat purchases of the same brand over time (Rossiter and Percy, 1987). According to Chaudhuri and Holbrook (2001, p. 82) “attitudinal brand loyalty includes a degree of dispositional commitment in terms of some unique value associated with the brand. Taking the attitudinal focus, Yoo and Donthu (2001, p. 3) defined brand loyalty as “the tendency to be loyal to a focal brand, which is demonstrated by the intention to buy the brand as a primary choice.” Behavioral definitions of brand loyalty stress brand loyalty as revealed in purchase choices; attitudinal definitions stress brand loyalty as an intention. Businesses enjoy competitive advantages due to brand loyal customers, for example, reduced marketing costs because retaining current customers costs less than attracting new customers (Lin, 2010). Further, brand loyal customers purchase more merchandise, tend to ignore competitors’ advertising, are willing to pay higher prices, spread positive word-of-mouth, and recommend the brand to other potential customers (Knox and Walka, 2001; Krishnamurthi and Raj, 1991; Kumar, Luthra, and Datta, 2006; Reichheld and Sasser, 1990). The anticipated outcome of brand loyalty, then, is repeat purchases by loyal consumers (Aaker, 2009) which also suggests that brand loyalty may contribute to compulsive buying behavior. Therefore, hypothesis three was proposed.

- H3. Individuals with a higher (vs. lower) compulsive buying tendency will differ in level of brand loyalty.

Brand attachment

Brand attachment refers to a strong connection between the brand and the customer’s self (Kleine et al. 1995). Brand attachment focuses on the brand (a mental image) instead of a physical product (Fournier, 1998; Fournier and Yao, 1997). The stronger

the consumer's self-brand relationship, the stronger the attachment to the brand. According to Ball and Tasaki (1992, p. 159), "objects that are socially visible; expensive; reflective of an individual's roles, relationships, accomplishments, and experiences; and usually "personalized" by the efforts of their owners are clearly more likely to reflect self." Attachment enhances a willingness to devote resources (i.e., cognitive, emotional, financial) to the object of attachment (Feeney and Noller, 1996). Psychological attachment to a brand can result in consumption (e.g., Belk, 1988; Malär et al. 2011; Park, Macinnis, and Priester, 2006) and, thus, attachment may play an influential role in consumers' compulsive buying behavior. Therefore, hypothesis four was proposed.

- H4. Individuals with a higher (vs. lower) compulsive buying tendency will differ in level of brand attachment.

Perceived brand quality

Perceived quality refers to the consumer's subjective evaluation of the product and not the actual quality of the product (Zeithaml, 1988). Perceived quality has been shown to be associated with price premiums, brand usage, and stock return (Aaker, 1996). It is related to brand equity, including some measures of functional benefits (Aaker, 1996). Perceived brand quality provides value to consumers by providing them with a reason to buy and by differentiating the brand from competing brands. Perception of quality is likely to be associated with compulsive buying by providing a reason to buy. Therefore, hypothesis five was proposed.

- H5. Individuals with a higher (vs. lower) compulsive buying tendency will differ in level of perceived brand quality.

Method

Materials and procedure

The instrument used for this study consisted of a self-administered questionnaire containing demographic items and items related to compulsive buying (Faber and O'Guinn, 1992), brand awareness (Aaker, 1991), brand loyalty (Carroll and Ahuvia, 2006), brand attachment (Ball and Tasaki, 1992), and perceived brand quality (Yoo and Donthu, 2001). Demographic items included age, gender, year in school, major, ethnicity and marital status.

The Compulsive Buying Scale (Faber and O'Guinn, 1992) was used to measure the degree of the respondent's feelings, emotions, and behaviors related to compulsive buying, using seven items rated on 5-point scales. Examples of items include "If I have any money left at the end of the pay period, I just have to spend it" and "I bought things even though I couldn't afford them." A weight sum is calculated for an overall score [Scoring equation = $-9.69 + (Q1a \times .33) + (Q2a \times .34) + (Q2b \times .50) + (Q2c \times .47) + (Q2d \times .33) + (Q2e \times .38) + (Q2f \times .31)$]. A respondent who scores -1.34 or less is classified as a compulsive buyer (Faber and O'Guinn, 1992). Roberts, Manolis, and Pullig (2014) reported composite reliability of .85. Evidence of validity was provided by Cole and Sherrell (1995) who found that the scale was able to correctly classify 88 % of compulsive and non-compulsive buyers.

The brand awareness measure (Aaker, 1991) has five items each accompanied by 7-point response categories. Example items are “I am aware of this brand” and “I can quickly recall the symbol or logo of this brand.” Validity and reliability (Cronbach’s $\alpha = .94$) were established by Yoo, Donthu, and Lee (2000).

Brand attachment was measured with a 9-item scale (Ball and Tasaki, 1992). The scale has two dimensions (ownership and emotion) and measures the degree to which an object (e.g., a brand) is used to maintain an individual’s self-concept. Ball and Tasaki verified the construct of brand attachment has discriminant validity, predictive validity and is reliable (Cronbach $\alpha = .89$; ownership = .89; emotion = .84). Attachment was correlated with emotional significance and was not correlated highly with materialism. Example items are “If someone ridiculed this brand, I would feel irritated” and “This brand reminds me of who I am.”

A four-item scale developed by Carroll and Ahuvia (2006) was used to measure brand loyalty. Carroll and Ahuvia (2006, p. 82) defined “brand loyalty as conative loyalty (Oliver, 1997) or the extent of commitment to repurchase the brand.” Carroll and Ahuvia reported that scores ranged from 4 to 20 ($M = 13.4$; $SD = 4.3$); the four items loaded on one factor with all loadings in excess of .72, explaining 67 % of variance in the items. Reliability was .90 (coefficient alpha). Sample items include “When I go shopping, I don’t even notice competing brands” and “I’ll do without rather than buy another brand.” Carroll and Ahuvia (2006) found that hedonic products have a negative effect on brand loyalty.

Perceived brand quality was measured by two items (Yoo and Donthu, 2001): “The likely quality of this brand is extremely high; The likelihood that this brand would be functional is very high.” Yoo and Donthu reported both composite and coefficient reliability at .92.

Based on a favorite fashion brand name they listed, participants responded to all brand-related items using a 7-point response category (7 = strongly agree; 1 = strongly disagree). Questionnaires were distributed in large lecture classes and took about 15 min to complete.

Participants

Participants were 269 US university students at a large mid-western university in approximately 50 different majors (138 men, 131 women; mean age = 21.96). There were 125 Caucasians, 80 African American, 14 Asian/Asian Americans, 18 Hispanic/Latinos and 5 classified as other. The majority ($n = 251$) were single, 9 were married, and 7 were otherwise classified.

Analysis

MANOVA, ANOVA, descriptive statistics, t-tests and Cronbach’s alpha reliability were used to analyze the data. Reliability of the scales was acceptable—Cronbach’s alpha for each scale ranged from .70 to .90 (see Table 1).

Results

Following Faber and O’Guinn’s (1992) procedure 47 respondents (18 %; 18 men, 29 women) were classified as compulsive buyers. There is a distinction between being

Table 1 Descriptive statistics and reliabilities for scale items

Variable names	Mean	SD	Reliability	Range	Numbers of scale items
Brand awareness	5.71	1.08	.752	1.00 to 7.0	5
Brand loyalty	5.11	.94	.900	1.90 to 7.0	4
Brand attachment	3.51	1.17	.886	.92 to 6.38	10
Perceived brand quality	5.60	1.24	.870	1.60 to 7.0	2
Compulsive Buying	1.82	.39	.701	−4.87 to 3.61	7

classified as a compulsive buyer and having compulsive buying tendencies. Having compulsive buying tendencies refers to having relatively lower scores on the compulsive buying scale. Lower numbers indicate a higher compulsive buying tendency. Results revealed that the average score on compulsive buying tendency was .46 (SD = 1.89), range = −4.87 to 3.61.

To test for gender differences toward compulsive buying tendency, a *t*-test was conducted. There was a significant difference between men and women for compulsive buying tendency ($t = 3.103$, $df = 261$, $p < .01$). As expected, women ($M = 0.10$, $SD = 1.92$) showed higher compulsive buying tendency than men ($M = 0.81$, $SD = 1.78$). Thus, Hypothesis 1 was supported.

Participants were divided into three groups and labeled as high (scores from −4.87 to −.1933; $n = 88$), medium (scores from −.1932 to 1.433; $n = 93$), and low (scores from 1.434 to 3.61; $n = 87$) in compulsive buying tendency. MANOVA with compulsive buying tendency (high/medium/low) as the independent variable, and brand awareness, brand loyalty, brand attachment and perceived brand quality as the dependent variables revealed a significant effect [$F(4, 263) = 3.412$, $p < .01$]. Therefore, ANOVA was conducted to further examine the variables. Participants with high and medium compulsive buying tendency scored higher on brand attachment and brand loyalty than participants with low compulsive buying tendency. Participants with high compulsive buying tendency scored lower on brand awareness than participants who were medium or low in compulsive buying tendency (see Table 2). Thus, Hypotheses 2, 3, and 4 were supported. However, there was no difference in scores on perceived brand quality between groups higher and lower in compulsive buying tendency. Thus, Hypothesis 5 was not supported.

Discussion

The prevalence of compulsive buying among college students has been reported as 16 % (Magee, 1994), 12 % (Hassay and Smith, 1996), 6 % (Roberts, 1998), and 9 % (Grant et al. 2005). In the current study, following Faber and O'Guinn's (1992) procedure, 18 % of the participants were classified as compulsive buyers. The percentage of compulsive buying among college students has not shown any predictable pattern in the last 20 years. However, it is disturbing that the percentage in the current study is double the percentage from ten years ago. Reasons for this may include increased credit card availability and technological advances that make shopping available anywhere/anytime such as internet access, E-commerce, or M-commerce.

The current study indicates how brand variables can influence consumers' compulsive buying. In general, the results of this study support that brand variables such as

Table 2 ANOVA results of compulsive buying tendency on brand variables

Scale	df	Mean square	F	p-value
Brand Awareness				
Compulsive Buying Group	2, 265	3.410	2.96	.022
High	M = 5.49a (SD = 1.16)			
Medium	M = 5.87b (SD = .94)			
Low	M = 5.76b (SD = 1.11)			
Brand Loyalty				
Compulsive Buying Group	2, 265	12.878	5.003	.007
High	M = 3.43b (SD = 1.73)			
Medium	M = 3.12b (SD = 1.56)			
Low	M = 2.66a (SD = 1.59)			
Brand Attachment				
Compulsive Buying Group	2, 265	5.240	3.874	.05
High	M = 3.66b (SD = 1.13)			
Medium	M = 3.64b (SD = 1.11)			
Low	M = 3.23a (SD = 1.18)			
Perceived Quality				
Compulsive Buying Group	2, 265	3.410	2.96	.119
High	M = 5.44 (SD = 1.42)			
Medium	M = 5.81 (SD = 1.73)			
Low	M = 5.53 (SD = 1.15)			

Note: Compulsive Buying Groups (High: N = 88; Medium: N = 93; Low: N = 87)

a,b Duncan test

brand attachment, brand loyalty, and brand awareness are linked to compulsive buying behavior.

As proposed in H1, results revealed that women were more likely to have a higher level of compulsive buying tendency than men. This result is consistent with previous studies (e.g., Dittmar and Drury, 2000; Roberts, 1998) showing that self-image concerns and primary socialization are more closely linked to higher levels of compulsive buying in women than in men. Women are socialized to develop more pleasure from shopping than men. As some research (e.g., Mitchell et al. 2006) indicated, fashion items such as clothing, shoes, crafts, accessories and cosmetics are frequently purchased by compulsive buyers. Also, compulsive shoppers are interested in buying new fashion products which can be used to represent their fashion sense and feminine identity (Black, 2007; Richards, 1996).

H2 was supported in that individuals with a high (vs. medium and low) compulsive buying tendency differed in level of brand awareness. Medium and low levels of compulsive buyers showed higher brand awareness than the high level of compulsive buying tendency. This may mean that compulsive buyers tend to ignore competing brands and focus on their favorite brand. On the other hand, low and medium compulsive buyers have no difficulty imagining characteristics of different brands in their minds and can quickly recall brand symbols or logos. With shopping available anywhere/anytime due to internet access, E-commerce, or M-commerce, perhaps brand symbols and visual imagery that can affect brand awareness are not as readily available as when consumers make product decisions in a brick-and-mortar store.

As proposed in H3, individuals with a high (vs. medium and low) compulsive buying tendency differed in level of brand loyalty. As many studies (e.g., Knox and Walka, 2001; Luthra and Datta, 2006) indicated, brand loyal customers are more likely to purchase the brand's products, are willing to pay more, mention and recommend the brand product to other customers. Thus, brand loyalty may be linked to compulsive buying tendency.

As proposed in H4, individuals with a high (vs. medium or low) compulsive buying tendency differed in level of brand attachment. The high level compulsive buyers were more likely to have higher levels of brand attachment. Findings are consistent with results of other studies (e.g., Malär et al. 2011; Park et al. 2006) that found psychological attachment was linked with consumption. Also, consistent are findings of some studies (Bell, 2010; Sacramento and Flight, 2014) that brand attachment enhances compulsive buying intention of the same brand in future buying. Especially, consumers are more likely to attach to the brands they feel are associated with their ideal self (Sacramento and Flight, 2014).

H5 was not supported in this study. Individuals with a high (vs. medium or low) compulsive buying tendency did not differ in level of perceived brand quality. It was anticipated that perceived brand quality is likely to be linked with compulsive buyers' purchasing motivation. However, research (e.g., Faber, O'Guinn, and Krych, 1987) has shown that compulsive buyers may not necessarily be interested in quality when they purchase products because they sometimes do not express an interest in items *after* they are purchased. According to O'Guinn and Faber (1989, p. 147), "compulsive buyers buy not so much to obtain utility or service from a purchased commodity as to achieve gratification through the buying process itself."

Conclusions

The findings of this study provide new perceptions and implications to both academicians and practitioners. From the academic perspective, this study makes a contribution to the brand management literature by exploring the impact of consumer-brand relationships on compulsive buying behavior. This study contributes new knowledge and insights to the compulsive buying and branding literature where jointly examining the two types of variables has been neglected. Brand attachment, brand loyalty, and brand awareness should be acknowledged as variables that are relevant to consumers' compulsive buying tendencies. These results provide corporations or business marketers with an ethical dilemma. The findings indicate that higher compulsive buying tendency is positively related to consumers' favorable brand attachment and brand loyalty but negatively related to brand awareness.

Other research has shown a link between compulsive buying and credit card use (McElroy et al. 1994; O'Guinn and Faber, 1989; Roberts, 1998). An opportunity exists for retailers who offer store credit cards to help compulsive buyers reduce or avoid over-spending. Retailers can help to educate customers about the risks of compulsive shopping habits through a marketing campaign. For example, a "Shop Responsibly" campaign will raise customers' awareness of their shopping motivations and their bad shopping habits. Having a campaign like this could also positively affect the company's image. Customers will see the retailer as a socially responsible firm that puts customers first. This can increase customers' brand loyalty and brand attachment. For another

example, including information about compulsive buying in the envelope containing the monthly billing might reach compulsive buyers at a critical time when they are considering the effects of their buying binges. Information provided could be a website address (e.g., Shulman, 2015) or a telephone number where compulsive buyers can get help for their problem.

Research limitations and further study

Results of this study are limited in their generalization because the sample cannot be assumed to be representative of all college students or non-college students of the same age. For further research, it would be meaningful to investigate compulsive buying behavior and a wider variety of brand variables (e.g., brand love, brand trust, brand engagement). O'Guinn and Faber (1989) suggested that enhanced perceptions of sight, sound, and tactile sensations may be important in purchasing decisions of compulsive buyers. Research addressing these enhanced perceptions in conjunction with brand variables might yield insights helpful in understanding compulsive buying. Research might also examine the role of E-commerce or M-commerce and compulsive buying. Finally, it would be meaningful to inspect the role of brand variables and compulsive buying within and across cultural contexts.

Competing interests

The authors declare that they have no competing interests.

Authors' contribution

SHL compiled the questionnaire, collected and analyzed data, and participated in writing the manuscript. JW participated in compiling the questionnaire, analyzing the data, reviewing the literature, and writing the manuscript. Both authors read and approved the final manuscript.

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SHL is a program director and associate professor in Fashion Design and Merchandising Program in Southern Illinois University. Her research interests include brand marketing, consumer behavior, social psychology of clothing, cross-cultural study, and technology and fashion.

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